IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Inventor:	Chan-Wah NG, et al.	Art Unit 2419
Appln. No.:	10/539,418	Exr. D. Mitchell
Filed:	June 17, 2005	Conf. No. 7965
For:	MOBILE NETWORK CONTROL APPARATUS AND MOBILE NETWORK CONTROL METHOD	

AMENDMENT UNDER 37 CFR §1.116

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Final Rejection dated October 6, 2008, please amend the above-captioned application as follows:

IN THE CLAIMS

Please amend the claims to read as follows:

Listing of Claims

1-8. (Canceled).

9. (Currently Amended) A mobile network control apparatus that maintains a connection constructed between a mobile network and a global network and that has a plurality of interfaces, the mobile network control apparatus comprising:

a failure detection section that detects a failure of packet tunneling executed using a first interface of the plurality of interfaces, the first interface having a connection route to the global network;

a search section that searches for a second interface from the plurality of interfaces when the failure is detected;

an execution section that executes packet tunneling using the searched second interface instead of the first interface; and

a multi-homing detection section that detects whether or not the mobile network control apparatus is multi-homed, wherein:

when the mobile network control apparatus is not multi-homed, the search section searches for an alternative apparatus having the connection route to the global network and belonging to the mobile network, and determines an ingress interface of the plurality of interfaces

as the second interface, the ingress interface having a connection route to the searched alternative apparatus, ~~and~~

when the mobile network control apparatus is multi-homed, the search section searches for an alternative egress interface having the connection route to the global network from the plurality of interfaces, and determines the alternative egress interface as the second interface, and

the search section further comprises a registration section that transmits a registration request of a binding between a home address of the first interface as a home address and an address of the second interface as a care of address in the mobile network control apparatus, from the second interface to the home agent of the first interface.

10. (Currently Amended) The mobile network control apparatus according to claim 9, wherein[[:]] ~~the search section comprises a registration section that registers a binding between an address of the ingress interface and an address of the mobile network control apparatus, and~~ the search section searches for another alternative apparatus when the registration section fails to register the binding.

11. (Currently Amended) The mobile network control apparatus according to claim 10, wherein when a current address of the second ingress interface is not a global address, the registration section acquires a global address from the searched alternative apparatus and registers a binding between the acquired global address and the address of the first interface ~~mobile network control apparatus~~.

12. (Previously Presented) The mobile network control apparatus according to claim 11, wherein the search section searches for another alternative apparatus when the registration section fails to acquire the global address.

13-14. (Canceled).

15. (Currently Amended) A mobile network control method in a mobile network control apparatus that maintains a connection constructed between a mobile network and a global network and that has a plurality of interfaces, the method comprising:

a failure detection step of detecting a failure of packet tunneling executed using a first interface of the plurality of interfaces, the first interface having a connection route to the global network;

a search step of searching for a second interface from the plurality of interfaces when the failure is detected;

an execution step of executing packet tunneling using the searched second interface instead of the first interface; and

a multi-homing detection step of detecting whether or not the mobile network control apparatus is multi-homed, wherein:

when the mobile network control apparatus is not multi-homed, in the search step, an alternative apparatus having the connection route to the global network and belonging to the mobile network is searched for, and an ingress interface of the plurality of interfaces is

determined as the second interface, the ingress interface having a connection route to the searched alternative apparatus, ~~and~~

when the mobile network control apparatus is multi-homed, in the search step, an alternative egress interface having the connection route to the global network is searched for from the plurality of interfaces, and the searched alternative egress interface is determined as the second interface, and

the search step further comprises a registration step of transmitting a registration request of a binding between a home address of the first interface as a home address and an address of the second interface as a care of address in the mobile network control apparatus, from the second interface to the home agent of the first interface.

REMARKS

Reconsideration and allowance of this application are respectfully requested in light of the above amendments and the following remarks.

Claims 9-11 and 15 have been amended, and claims 13 and 14 have been canceled. Support for the amendments is provided for example in Fig. 4B and the specification on page 22, line 9, through page 23, line 6.

Claims 9 and 15 were rejected, under 35 USC §103(a), as being unpatentable over Inoue (US 2002/0031108) in view of Hsing et al. (US 6,167,025). Claims 10-14 were rejected, under 35 USC §103(a), as being unpatentable over Inoue in view of Hsing and Ishiyama et al. (US 2001/0014917). To the extent these rejections may be deemed applicable to the amended claims, the Applicants respectfully traverse based on the points set forth below.

Claim 9 now defines a mobile network control apparatus that registers a binding between a home address of a first interface at which a failure is detected, as a home address, and an address of an alternative second interface as a care-of address, in a home agent of the interface at which a failure is detected. That is, the subject matter of the claimed invention relates to securing an alternative route for connection when packet tunneling executed using a first interface of a mobile network control apparatus fails (i.e., when communication disconnection occurs). The claimed subject matter supports eliminating a need for nodes of a mobile network to change a default router, thereby eliminating extra processing loads and latency associated with changing a default router and updating care-of address bindings (see specification page 9, line 17, through page 10, line 6). (References herein to the specification and drawings are for illustrative

purposes only and are not intended to limit the scope of the invention to the referenced embodiments.)

As acknowledged in the Final Rejection, Inoue discloses using one interface as a back-up of another interface for a multi-home state condition (see Inoue paragraph [0077] and Final Rejection page 3, lines 2-10). However, Inoue discloses that packets transmitted to an address of an interface on a side at which a failure (i.e., communication disconnection) is detected (e.g., cellular phone network 6) are directed to the interface at which a failure is detected. Therefore, the packets are not transferred to an interface on a back-up side (e.g., home local network 3) and portable terminal device 20 cannot receive the packets. That is, a configuration to solve the above-descried problem is not disclosed. Inoue's disclosed back-up selects in advance a supplementary route taking into consideration states of networks on the transmitting side (see Inoue paragraph [0078]), but does not establish an alternative route for the interface on the side at which a failure is detected, as acknowledged in the Final Rejection (see Final Rejection page 3, last paragraph).

Hsing discloses detecting a routine failure between an ATM switch and other switches, searching for other switches when calls of a switch exceed the maximum capacity, and establishing a connection (see Hsing col. 9, line 21, through col. 10, line 60). However, Hsing does not disclose or suggest the claimed subject matter of registering a binding between a home address of an interface at which a failure is detected, as a home address, and an address of an alternative interface as a care-of address, in a home agent of the interface at which a failure is detected.

Accordingly, the Applicants submit that the teachings of Inoue and Hsing, considered individually or in combination, do not render obvious the subject matter now defined by new claim 9. Independent claim 15 similarly recites the above-mentioned subject matter distinguishing apparatus claim 9 from the applied references, but with respect to a method. Therefore, the rejections applied to claims 10-12 are obviated and allowance of claims 9 and 15 and all claims dependent therefrom is considered to be warranted.

In view of the above, it is submitted that this application is in condition for allowance, and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,

/James Edward Ledbetter/

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